Forensic Analysis Job Aide

Prepared for:
[Class Name]
[Class Date]

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Name

Contact

Notes

Chemical Analysis Procedure

WARNINGS

- ALWAYS wear appropriate personal protective equipment (PPE): gloves, goggles, mask or respirator, skin coverings for arms and legs, closed-toe shoes
- Conduct ALL sample analysis in appropriate fume hood or well-ventilated area away from bulk chemical material
- ALWAYS perform sensitivity testing on a small sample of bulk materials and record results
- ALWAYS check pH of unknown liquids and solids before sampling and record results
  pH: <7=Acidic 7=Neutral >7=Basic
- ALWAYS triage materials using colorimetric technology and record results
- If suspected Chemical Warfare Agent (CWA), conduct ALL sample manipulation and analysis in Glovebox or ISO-POD, or contact CBRNE/EOD support

Cautions

- Never handle strong acids or bases without proper PPE
- Never directly touch instrumentation to strong acids or bases

Notes

- Always record (written) and photograph test results
- Always compare test results obtained from presumptive & confirmatory technologies

Chemical(s) are said to be IDENTIFIED when:

- TWO different technologies are used for analysis
- BOTH technologies produce matching, positive identification
- ONE technology MUST BE confirmatory

START HERE

1) Assign a unique sample identifier with case number
2) Photograph sample & record physical description (e.g. off-white crystaline powder, clear liquid)
3) Determine type of sample:

Substance is not visible to the naked, unaided eye: on a swab, in soil, liquid or gel, or other residue on a surface or object

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Sample is TRACE

Rub collection swab against surface and proceed with testing equipment as available or package for analysis at higher laboratory

OR

Substance is visible to the naked, unaided eye: powder, solid, liquid, gel, or plant material

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Sample is BULK

- Perform sensitivity testing (page 2)
- Test pH; record and photograph results
  pH: <7=acidic 7=neutral >7=basic
- Proceed with testing equipment as available or package for analysis at higher laboratory

Chemical Analysis Procedure

Sensitivity testing procedure

1) Wear gloves to prevent cross contamination and possible injury, and to maintain and preserve integrity of collected materials.

2) Isolate a small pea-sized sample away from bulk material in order to conduct sensitivity testing.

⚠ Sensitivity testing will never be done in the general vicinity of bulk material for safety.

3) Conduct flame test and document reaction including:
- color change to material
- detonation
- burning
- color of the flame
- melting
- smell
- flash

✱ If material detonates, it is considered sensitive to heat/flame and may be a primary explosive.

4) Conduct friction and impact test and document reaction including:
- detonation upon friction
- detonation upon impact

ⓘ If material does not detonate upon flame, friction, or impact stimulus then it is more than likely not a primary explosive.

CELLEX

Phone Acronyms

GSM / CDMA - 2 different network protocols used to make calls and transmit data

IMEI - International Mobile Equipment Identity
Unique 15-digit serial number of GSM mobile devices
May be displayed by dialing *#06#

39557820 (type allocation) 21541 (serial number) 03 (software version)

MEID - Mobile Equipment Identifier
Globally unique ID number for CDMA mobile devices

23 (region code) 867921 (manufacturer code) 32970 (serial number) 0 (check digit)

MSISDN - Mobile Station International Subscriber Directory Number
Phone number

SIM Card Acronyms

ICCID - Integrated Circuit Card Identifier
Unique ID for SIM cards

89 (telcom ID) 44 (country code) 11 (network code) 0064068512970

IMSI - International Mobile Subscriber Identity
Globally unique number
Identifies a GSM subscriber within a network

234 (country code) 33 (network code) 9810492320 (mobile subscriber identity number)

⚠ Maintain forensic integrity: always wear gloves & mask

Unmanned Aircraft System (UAS)

START HERE Power?

OFF
LEAVE OFF
- Remove battery

ON
TURN OFF
- Remove battery

CONTINUE →

20211110

1) Document
- Photograph device
- Note:
  - Make
  - Model
  - Serial number
  - Current time
  - Current location
  - Direction of travel

2) Isolate from network
- Place in Faraday container
- Cover audio & video inputs

3) Collect
- Manuals
- Cables
- Controllers
- Bystanders
- Nearby devices

✱ If mobile devices are found, process them per **Mobile Device** page ↓

4) Transport
- Label individual items per SOP
- Package to avoid impact / shock
- Complete chain of custody form
- Send directly for acquisition

Mobile Device

START HERE Power?

OFF
LEAVE OFF
- Remove battery
- If battery is NOT removable, pull SIM card

ON
LEAVE ON
- Place in airplane mode
- Cover cameras

✱ Pull SIM card ONLY as a last resort

CONTINUE →

1) Document
- Photograph device
- Note:
  - Make
  - Model
  - IMEI / MEID
  - Current time
  - Phone time

2) Collect
- Manuals
- Cables
- PINs/passcodes written nearby or stated during interview

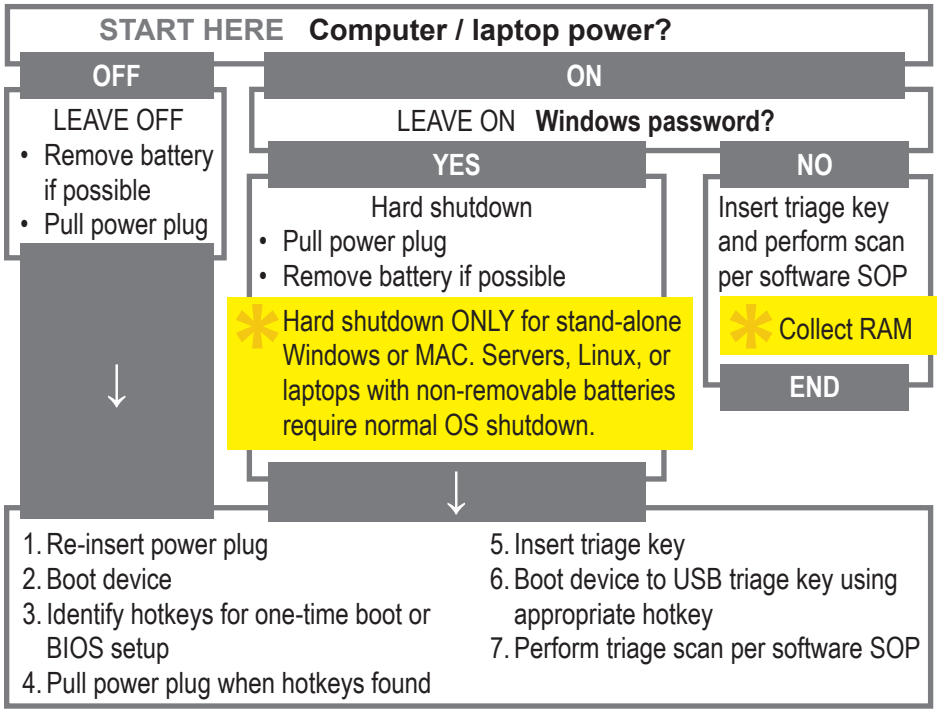
✱ DO NOT search device for passcodes

3) Transport
- Seal in Faraday bag
- Label individual items per SOP
- Package to avoid impact / shock
- Complete chain of custody form
- Send directly for acquisition

MEDEX

⚠ Maintain forensic integrity: always wear gloves & mask

Triage



⚠ Required Documentation

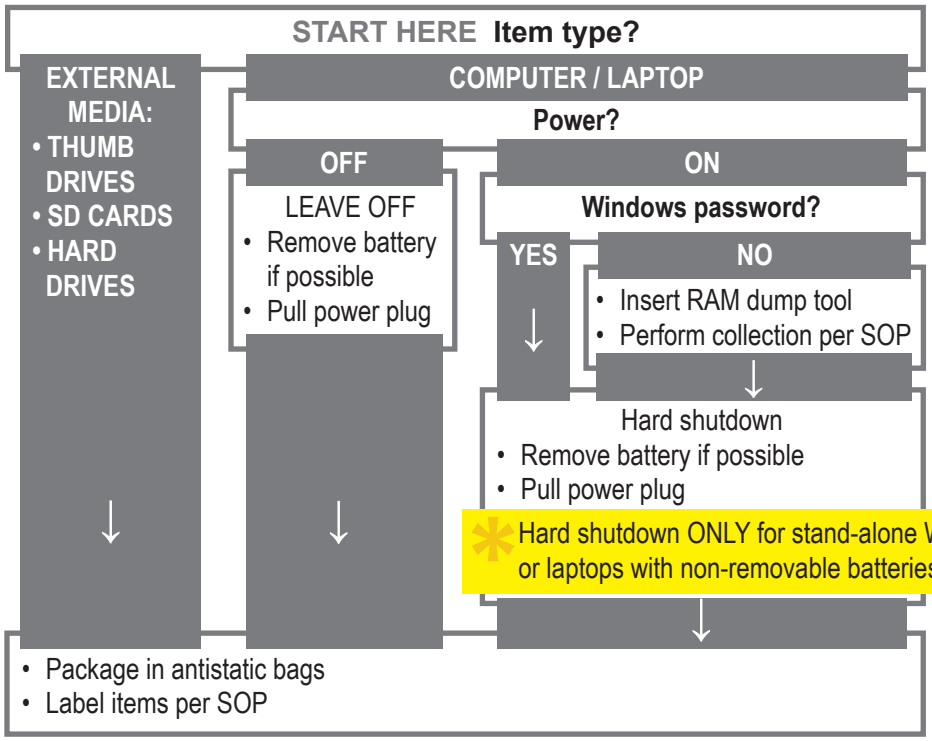
Photograph:
- All found media items
- Device screen
- Running program windows
- Open file windows

Notate:
- Device state (ON / OFF)
- Make
- Model
- Serial number

Common Hotkeys

One-time boot:	BIOS setup:	
• F12	• F1	• F10
	• F2	• DEL
		• ESC

Collection



⚠ Required Documentation

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- Serial number

CSI 7-Step Protocol

…for Securing and Investigating a Crime Scene

Note: Crime circumstances, type of scene and agency protocol may dictate the methodology of scene processing using this protocol as general guidance.

I. Establish scene dimensions and identify potential safety and health hazards

- Locate focal point
- Observe for secondary scene(s)
- Biohazards / power / weapons / chemical hazards / traps

II. Establish security

- Install boundaries or physical barriers
- Establish entry and exit paths
- Restrict access
- Begin contamination log
- Log all participants
- Exclude unnecessary people
- Protect evidence

III. Plan and communicate

- Determine type of investigation
- Gather data and intelligence
- Address legal issues
- Determine processing priority
- Define resources: current and future needs
- Secure areas: consultation and processing

IV. Conduct a primary survey

- Identify evidence
- Document
- Determine processing list for evidence collection

V. Document and process the scene

- Notes
- Photography
- Sketches
- Task assignment

VI. Conduct a secondary survey

- Determine search pattern
- Prioritize search areas
- Consider environmental factors

VII. Recover and preserve evidence

- Collect and package evidence

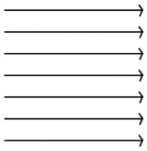
The information presented in this document was developed by Subject Matter Experts in the field of Crime Scene Investigation at the National Forensic Science Technology Center (NFSTC@FIU), the Bureau of Justice Assistance publication “Crime Scene Investigation - A Guide For Law Enforcement” (2013), and, “Practical Crime Scene Processing and Investigation” by Ross M. Gardner, Boca Raton, CRC Press (2012).

CSI Search Patterns

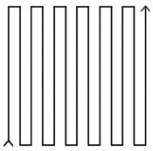
General Considerations

- All search patterns should be broken down by lanes, approximately the arms' length of the searcher.
- Determine and communicate to the team a distinct marking which should be made to indicate that an area search has been completed.
- Establish rules for action when potential evidence is found: who is called over, what path they should take, whether the other searches should halt moving until this finding is resolved.

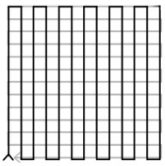
Spiral Search involves a spiral into (inward) or out from (outward) a crime scene. A practical disadvantage with outward spiral searches is the evidence may be destroyed as the searchers move to the center of the crime scene area to begin their outward search. This search method is effective in small areas.



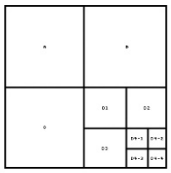
Lane Searches are accomplished by multiple searchers walking in parallel along defined lanes in the same direction.



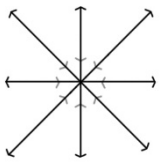
Parallel or Strip Searches are parallel lanes, with the search area crossed back-and-forth by a single searcher. This method works well in a large area.



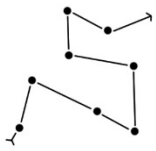
Grid Search is an effective method but time-consuming method conducted by completing a lane search in one direction and then completing a lane search in a perpendicular direction. While it takes twice as long as a lane search, it provides a more thorough search of an area.



Zone Search involves dividing a large area into adjacent zones. The smaller the size of the zone, the more methodical the search can be. Zone searches may be done by multiple searchers per zone. Divide the scene to be searched into quadrants. Personnel searching within each quadrant may use any method they choose. In very large search sites, the quadrant may be subdivided to effectively search the crime scene with all personnel available.



Wheel or Ray Search is only applicable to large, open, outdoor scenes. Begin in the middle of the scene, pick out a landmark, and walk in a direct line searching the area immediately in front of you. When the landmark has been reached, turn and walk the same path back to the originating point. At the originating point choose another point of reference and repeat this search method until you have gone in a complete circle.



Point-to-Point or Link Search works well in small or confined areas. Go to the first piece of evidence, process it, then go to the next piece of evidence. Repeat this process until all evidence has been processed and collected.

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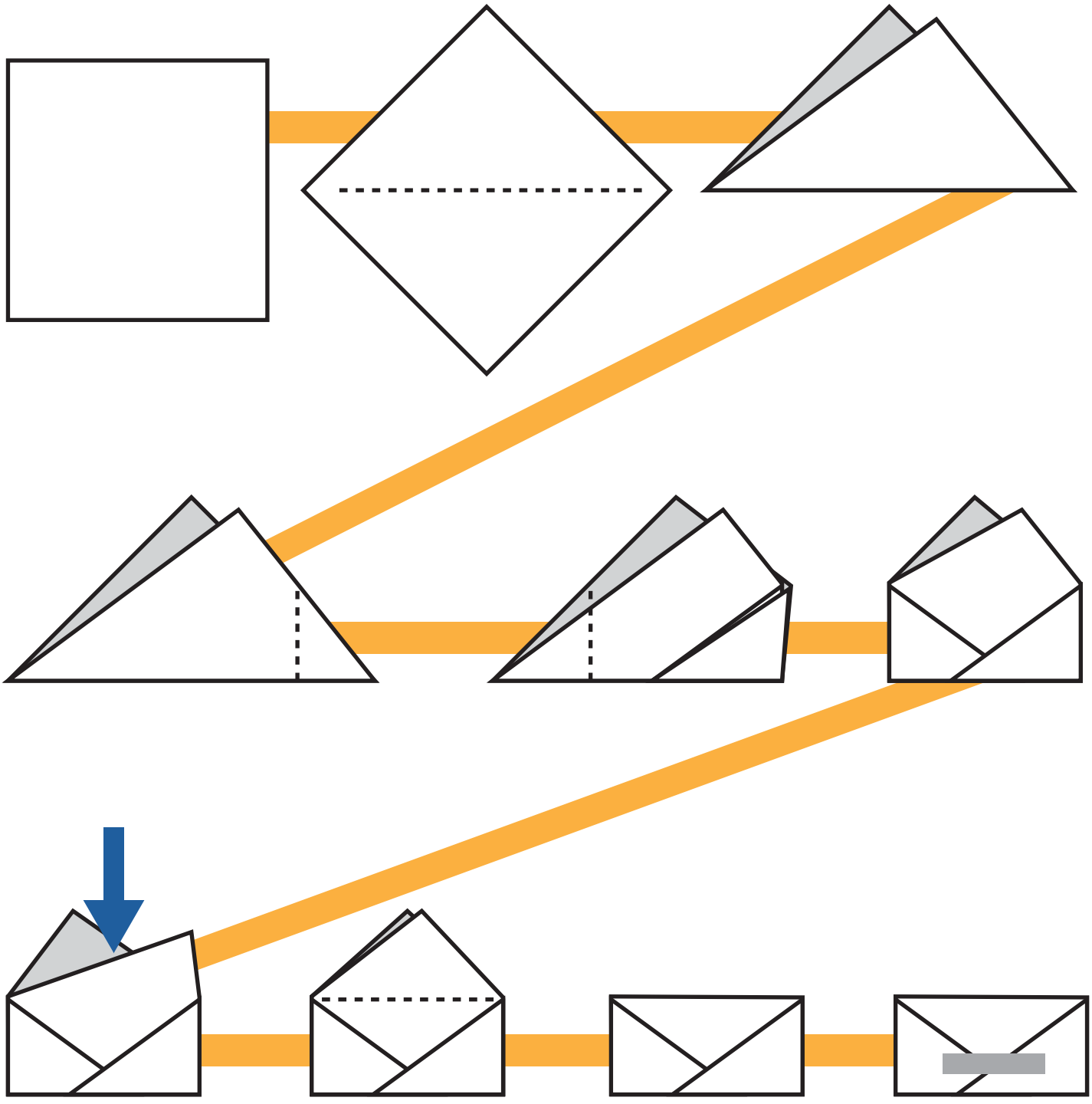
Expected Nuclear DNA Yield

Biological Source	Skin Cells	Saliva	Blood	Hair	Tissue or Bone
High Yield	• Razor • Clothing - located indoors • Sweatband of cap or hat	• Toothbrush • Fresh saliva	• Fresh stain • Dried stain - in room temperature conditions	• Root present - forcibly removed from head	• Fresh - recently deceased • Long bone with soft tissue in middle (e.g., femur)
Medium Yield	• Tools • Gun grips • Side of rifle butt near trigger guard*	• Mouth of bottle • Rim of cup • Cigarette • Pillow	• Diluted stains • Old stains • Chemically treated (e.g., fingerprint chemicals)	• Root present - shed from head	• Rib bones • Teeth
Low to No Yield	• Clothing - located outdoors or exposed to the elements • Items handled for short periods of time (e.g., utensils) • Touched surfaces (e.g., table top) • Bedding	• Dried saliva - located outdoors or exposed to the elements • Envelopes and stamps	• Dried stain - located outdoors or exposed to the elements • Harsh chemical exposure (e.g., bleach)	• No root - cut hairs	• Rotted - weeks to month outdoors • Degraded bones

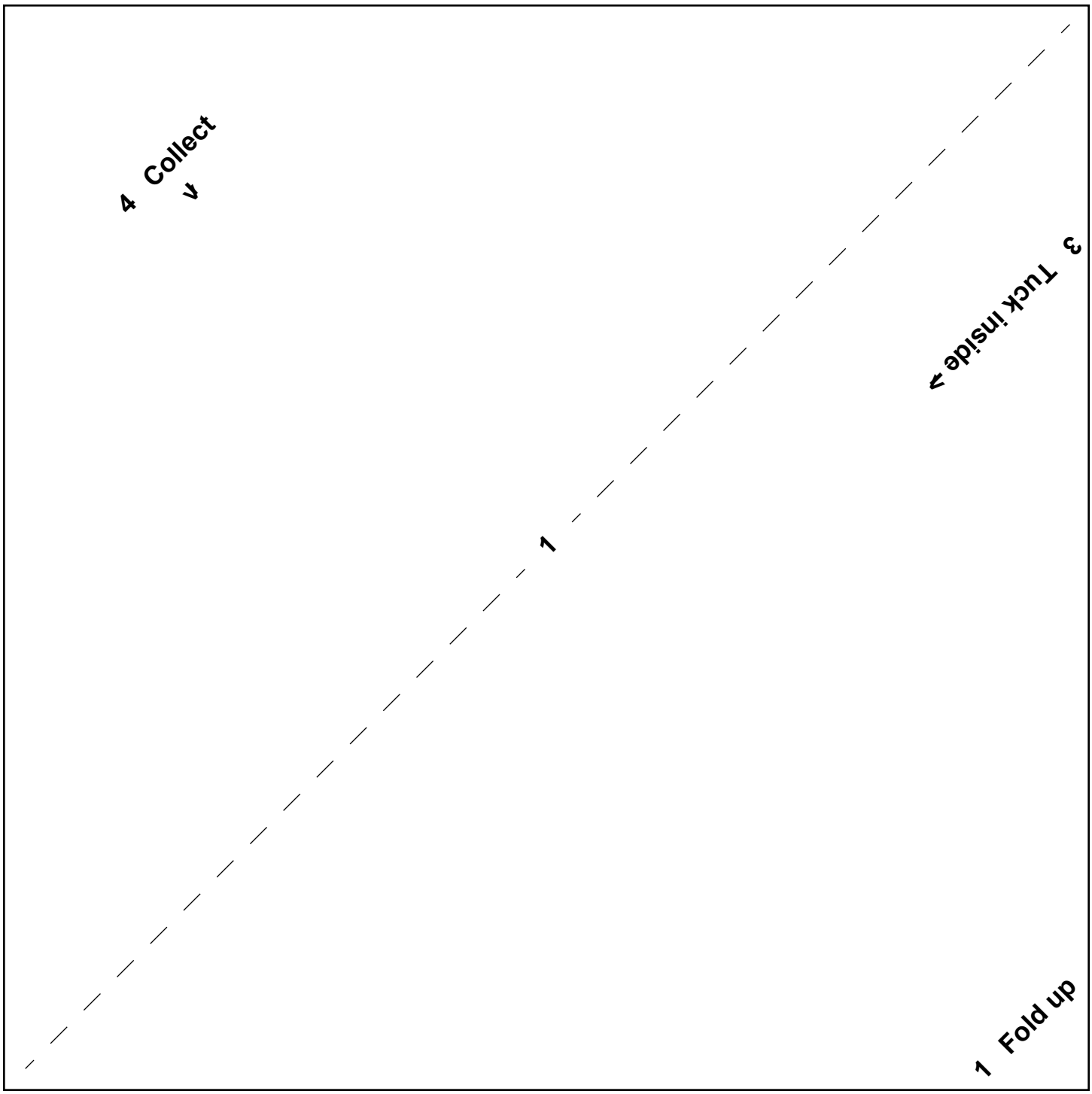
* Reliability of results will depend on use of item and which side of the rifle is pressed to the face.

Folding an Envelope Bindle

To Package Trace Evidence or Scrapings



Test Folding Page 1/2



Test Folding Page 2/2

Latent Print Processing - Powder Lift

- ALWAYS wear proper PPE to protect yourself from chemical exposure and maintain evidence integrity
- Always include a labeled scale in photographs

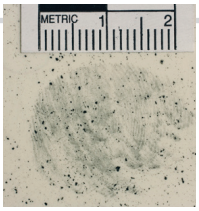
START HERE

Visual Examination

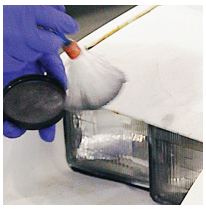
- Photograph entire item BEFORE processing for later analysis
- Carefully review entire surface with white light
- Patent (visible) prints may be observed, left behind from oil, ink, paint, soil, or other material
- Photograph observed prints with a labelled scale

Powder

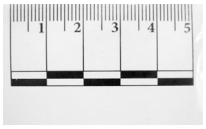
1. Choose powder color which creates best contrast from surface background:
   - black for light surfaces
   - white for dark surfaces



2. Process surface with black or white powder
   DO NOT over-powder or print detail may be obscured
   DO NOT USE magnetic wand with metal objects or surfaces

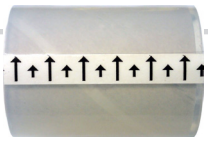


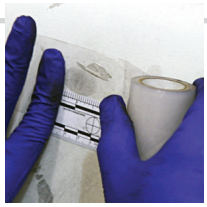
3. Label adhesive scale per SOP and place beside developed print on surface
4. Photograph developed print and scale



Lift

5. Apply sufficient tape or lifter to cover the entire print and scale
6. Smooth the tape or lifter over the surface, pressing firmly in one direction

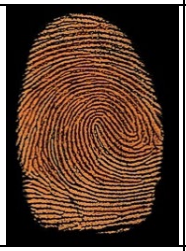




6. Peel off tape or lift with print and scale
7. Apply tape to blank side of lift card
8. Label lift card per SOP

Chemical Processing For Latent Prints

Chemical processing is best performed in a laboratory or controlled environment. Chemical processing involves safety considerations since the chemicals used may constitute a hazard. Personal protective equipment (PPE) must be worn at all times: gloves, eye protection, mask; use of a chemical hood is recommended.

Chemical	Surfaces	ALS	Filter	Result	CAUTIONS
Amido Black	Blood-contaminated impressions on light-color, non-porous surfaces	N/A — Stains proteins a **blue-black** visible to the unaided eye	N/A		Solvents used in preparation of the working solution can be flammable. Harmful if inhaled or contacts skin. Irritates skin, lungs, and eyes.
Basic Yellow	Applied after Cyanoacrylate Ester fuming on non-porous: • Glass • Metal • Shiny plastic	From **400nm UV** through **455nm Blue**	**Orange** or **yellow**		Solvents used in preparation of the working solution can be flammable. Toxic.
Cyanoacrylate Ester or Super Glue	Non-porous: • Glass • Metal • Shiny plastic Semi-porous: • Glossy paint • Waxed paper • Food containers	N/A — Prints develop a frosted white and may be visualized with oblique white light or further processed with a non-porous dye stain	N/A		Fumes are strong irritant to the lungs and eyes. Evidence should be developed in a sealed chamber.
Diazafluoren-9-one (DFO)	Porous: • Paper • Unfinished wood • Cardboard • Wall board	Prints develop **light pink** & may be fluoresced at **470nm Blue-Green**	**Orange**		Flammable. Harmful if swallowed and causes eye irritation.
Iodine	Light-color porous: • Paper • Unfinished wood • Wall board	N/A — Prints develop **brown** visible to the unaided eye	N/A		Fumes are highly toxic and should not be inhaled. Evidence should be developed in a ventilated and filtered safety hood.
Indanedione	Porous: • Paper • Unfinished wood • Cardboard • Wall board	**532nm Green**	**Orange** or **red**		Spray should not be inhaled. Evidence should be developed in a ventilated and filtered safety hood.

Chemical Processing For Latent Prints

Chemical	Surfaces	ALS	Filter	Result	CAUTIONS
Ninhydrin	Porous: • Paper • Unfinished wood • Cardboard • Wall board	N/A — Prints develop **purple** visible to the unaided eye	N/A		Solvents used in preparation of the working solution can be flammable. Causes skin irritation and serious eye irritation.
Leuco-Crystal Violet	• Sticky side of adhesive tapes • Blood-contaminated impressions • Porous surfaces	N/A — Prints develop **purple** visible to the unaided eye	N/A		Solvents used in preparation of the working solution can be flammable. Causes severe skin burns and eye damage.
Rhodamine 6G	Applied after Cyanoacrylate Ester fuming on non-porous: • Glass • Metal • Shiny plastic	**UV** **495nmBlue-Green** to **540nm Green** **625nm Red**	N/A **Orange** or **red** **Red**		Solvents used in preparation of the working solution can be flammable. Harmful if inhaled or absorbed through skin.
Small particle reagent	Wet surfaces: • Beverage cans or bottles • Vehicles • Oxidized or galvanized metal • Sticky side of adhesive tapes	N/A — Use white or dark gray reagent to contrast with background surface color	N/A		Some skin irritation may develop with repeated exposure.
Sudan Black	• Plastic baggies • Waxy-coated drinking cups and plates • Food stuff–contaminated non- and semi-porous items • Greasy surfaces	N/A — Prints develop **dark blue** to **black** visible to the unaided eye	N/A		Solvents used in preparation of the working solution can be flammable. May cause eye, skin, or respiratory irritation.

Forensic Science Disciplines

These forensic disciplines support local and international law enforcement investigation and criminal prosecution and may be applied to situations with diplomatic, religious, cultural, military, economic, and/or humanitarian concerns.

Scene Integrity, Security, Searching: identify evidence, maintain its condition for analysis, and usefulness for prosecution

Photography, Sketches, Notes: record the location, spatial relationship, and condition of evidence items and the incident scene

Collection, Packaging, Marking: prevent evidence deterioration while in-transit for analysis in a laboratory or military installation

Biometrics: use advanced technology to establish and verify an individual's identity and linkage to objects, people, or events

Chemistry: detect and identify explosives, precursors, narcotics, pharmaceuticals, corrosives, and poisons

Digital Forensics: extract evidence from mobile devices, cellphones, computers and networks, and portable drives

DNA: collect samples, develop a profile, and maintain a searchable records database, including rapid DNA, biological screening, and statistics

Fingerprints: document visible impressions and develop invisible (latent) marks tying individuals to objects or locations

Firearms and Toolmarks: match small arms, ammunition components, gunshot residue, bullet trajectories, machinery and manufacturing marks

Impressions: stabilize and document tire tracks and footwear imprints and 3D impressions on various surfaces

Trace Analysis: identify small particles transferred to material or persons, and physical matches in paint, glass, soil, and fibers

Laboratory Analysis: maintain sterile practices, equipment operation and repair, inventory, and evidence management

CSI Glossary

The information presented in this document was taken from the Bureau of Justice Assistance publication “Crime Scene Investigation - A Guide For Law Enforcement” (2013).

ABFO scales: (American Board of Forensic Odontology). An L-shaped piece of plastic used in photography that is marked with circles, black and white bars, and 18-percent gray bars to assist in distortion compensation and provide exposure determination. For measurement, the plastic piece is marked in millimeters.

Alternate light source (ALS): Equipment used to produce visible and invisible light at various wavelengths to enhance or visualize potential items of evidence (fluids, fingerprints, clothing fibers, etc.).

Argon ion laser: The first generation of lasers used for detection of latent fingerprints. Expensive and non-portable, they have been supplanted by the introduction of solid-state and semi-conductor lasers.

Bindle paper: Clean paper that is folded to contain trace evidence, sometimes included as part of the packaging for collecting trace evidence.

Biohazard bag: A container for materials that have been exposed to blood or other biological fluids.

Biological fluids: Fluids that have human or animal origin, most commonly encountered at crime scenes (e.g., blood, mucus, perspiration, saliva, semen, vaginal fluid, urine).

Biological weapon: Biological agents used to threaten human life (e.g., anthrax, smallpox, or any infectious disease).

Bloodborne pathogen: Infectious, disease-causing microorganisms that may be found or transported in biological fluids.

Boundaries: The perimeter or border surrounding potential physical evidence related to the crime.

Case file: The collection of documents comprising information concerning a particular investigation. This collection may be kept in case jackets, file folders, ring binders, boxes, file drawers, file cabinets, or rooms. Sub-files are often used within case files to segregate and group interviews, media coverage, laboratory requests and reports, evidence documentation, photographs, videotapes, audiotapes, and other documents.

Case identifiers: The alphabetic and/or numeric characters assigned to identify a particular case.

Chase: A space in a wall or floor for pipes or ducts.

Chain of custody: A process used to maintain and document the chronological history of the evidence. Documents should include name or initials of the individual collecting the evidence, each person or entity subsequently having custody of it, dates the items were collected or transferred, agency and case number, victim’s or suspect’s name, and a brief description of the item.

Chemical enhancement: The use of chemicals that react with specific types of evidence (e.g., blood, semen, lead, fingerprints) in order to aid in the detection and/or documentation of evidence that may be difficult to see.

Chemical threat: Compounds that may pose bodily harm if touched, ingested, inhaled, or ignited. These compounds may be encountered at a clandestine laboratory, or through a homemade bomb or tankard leakage (e.g., ether, alcohol, nitroglycerin, ammonium sulfate, red phosphorus, cleaning supplies, gasoline, or unlabeled chemicals).

Clean/sanitize: The process of removing biological and/or chemical contaminants from tools and/or equipment (e.g., using a mixture of 10-percent household bleach and water).

Collect/collection: The process of detecting, documenting, or retaining physical evidence.

Comparison samples: A generic term used to describe physical material/ evidence discovered at crime scenes that may be compared with samples from persons, tools, and physical locations. Comparison samples may be from either an unknown / questioned or a known source.

Samples whose source is *unknown / questioned* are of three basic types:

1. Recovered crime scene samples whose source is in question (e.g., evidence left by suspects, victims).
2. Questioned evidence that may have been transferred to an offender during the commission of the crime and taken away by him or her. Such questioned evidence can be compared with evidence of a known source and can thereby be associated or linked to a person, vehicle, or tool of a crime.
3. Evidence of an unknown/questioned source recovered from several crime scenes may also be used to associate multiple offenses that were committed by the same person and/or with the same tool or weapon.

Samples whose source is *known* are of three basic types:

1. A standard/reference sample is material of a verifiable/documented source which, when compared with evidence of an unknown source, shows an association or linkage between an offender, crime scene, and/or victim (e.g., a carpet cutting taken from a location suspected as the point of transfer for comparison with the fibers recovered from the suspect's shoes, a sample of paint removed from a suspect's vehicle to be compared with paint found on a victim's vehicle following an accident, or a sample of the suspect's and/or victim's blood submitted for comparison with a bloodstained shirt recovered as evidence).
2. A control/blank sample is material of a known source that presumably was uncontaminated during the commission of the crime (e.g., a sample to be used in laboratory testing to ensure that the surface on which the sample is deposited does not interfere with testing. For example, when a bloodstain is collected from a carpet, a segment of unstained carpet must be collected for use as a blank or elimination sample).
3. An elimination sample is one of known source taken from a person who had lawful access to the scene (e.g., fingerprints from occupants, tire tread impressions from police vehicles, footwear impressions from emergency medical personnel) to be used for comparison with evidence of the same type.

Contamination: The unwanted transfer of material from another source to a piece of physical evidence.

Control/blank sample: See *Comparison samples*.

Cross-contamination: The unwanted transfer of material between two or more sources of physical evidence.

Documentation: Written notes, audio/videotapes, printed forms, sketches and/or photographs that form a detailed record of the scene, evidence recovered, and actions taken during the search of the crime scene.

Drying box: A box intended to quickly dry multiple swabs with the aid of a fan blowing air through a chamber in which multiple swabs can be held apart from one another.

Dying declaration: Statements made by a person who believes he or she is about to die, concerning the cause or circumstance surrounding his or her impending death.

Electrostatic dust lifter: A device that operates by charging a plastic film, placed over the dust print, which creates electrostatic adhesions and draws the film onto the surface bearing the print. The dust particles are attracted to the film because of this charge and adhere to it.

Elimination sample: See *Comparison samples*.

Evidence identifiers: Tape, labels, containers, and string tags used to identify the evidence, the person collecting the evidence, the date the evidence was gathered, basic criminal offense information, and a brief description of the pertinent evidence.

Exemplars: A known sample of evidence created at the request of an investigator used for comparison to an unknown sample.

First responder(s): The initial responding law enforcement officer(s) and/or other public safety official(s) or service provider(s) arriving at the scene prior to the arrival of the investigator(s) in charge.

Faraday bag: Specialty collection bags for electronic parts with lining to protect the contents from electromagnetic forces.

Fluorescent powders: Powder intended to reveal latent prints which contain fluorescent chemicals that reveal itself under a forensic light source.

Forensic light source: see *Alternate light source (ALS)*.

Impression evidence: Objects or materials that have retained the characteristics of other objects that have been physically pressed against them.

Infrared photography: A photographic process of recording images by using light from the infrared (IR) spectrum only, generally 700 to 900 nanometers.

Initial responding officer(s): The first law enforcement officer(s) to arrive at the scene.

Investigator(s) in charge: The official(s) responsible for the crime scene investigation.

Known: See *Comparison samples*.

Latent print: A print impression not readily visible, made by contact of the hands or feet with a surface resulting in the transfer of materials from the skin to that surface.

Long-wave ultraviolet (UV) lamp: An ultraviolet light source that operates between 300-400 nanometers; useful for quickly scanning and documenting crime scenes when used in tandem with a UV-sensitive camera.

Major case prints: The recording of all friction ridge detail on the hands. This includes the fingers, fingertips, finger joints and edges of the fingers as well as the entire palm. Also known as “complete friction ridge exemplars.”

Matrix: The substance that is deposited or removed by the friction ridge skin when making an impression.

Measurement scale: An object showing standard units of length (e.g., ruler) used in photographic documentation of an item of evidence.

Multiple scenes: Two or more physical locations of evidence associated with a crime (e.g., in a crime of personal violence, evidence may be found at the location of the assault and also on the person and clothing of the victim/assailant, the victim’s/assailant’s vehicle, and locations the victim/assailant frequents and resides).

Nonporous container: Packaging through which liquids or vapors cannot pass (e.g., glass jars or metal cans).

CSI Glossary

Other responders: Individuals who are involved in an aspect of the crime scene, such as perimeter security, traffic control, media management, scene processing, and technical support, as well as prosecutors, medical personnel, medical examiners, coroners, forensic examiners, evidence technicians, and fire and rescue officers.

Outsole: The portion of footwear that is in direct contact with the ground.

Personal protective equipment (PPE): Articles such as disposable gloves, masks, and eye protection that are utilized to provide a barrier to keep biological or chemical hazards from contacting the skin, eyes, and mucous membranes and to avoid contamination of the crime scene.

Porous container: Packaging through which liquids or vapors may pass (e.g., paper bags, cloth bags).

Porous surface: any surface that has tiny openings that absorbs liquids or allows them to pass through (e.g., furniture fabric, canvas, wood, wall board)

Presumptive test: A non-confirmatory test used to screen for the presence of a substance.

Projectile trajectory analysis: The method for determining the path of a high-speed object through space (e.g., a bullet emanating from a firearm).

Radiological threat: The pending exposure to radiation energy. (This energy can be produced by shortwave X-rays or through unstable isotopes.)

Single-use equipment: Items that will be used only once to collect evidence, such as biological samples, then discarded to minimize contamination (e.g., tweezers, scalpel blades, droppers).

Secondary Liner: Secondary liner is a clear polyester sheet or roll used in industry for stickers, seals, and other adhesive-containing materials to protect the adhesive until ready for use.

Standard/reference sample: See *Comparison samples*.

Substrate: The surface upon which a friction ridge impression is deposited.

Team members: Individuals who are called to the scene to assist in investigation or processing of the scene (e.g., scientific personnel from the crime laboratory or medical examiner's office, other forensic specialists, photographers, mass disaster specialists, experts in the identification of human remains, arson and explosives investigators, clandestine drug laboratory investigators, as well as other experts).

Trace evidence: Physical evidence that results from the transfer of small quantities of materials (e.g., hair, textile fibers, paint chips, glass fragments, gunshot residue particles).

Transient evidence: Evidence which by its very nature or the conditions at the scene will lose its evidentiary value if not preserved and protected (e.g., blood in the rain).

Ultraviolet photography: A photographic process of recording images by using light from the ultraviolet (UV) spectrum only, generally less than 400 nanometers.

Unknown/questioned: See *Comparison samples*.

Walk-through: An assessment conducted by carefully walking through the scene to evaluate the situation, recognize potential evidence, and determine resources required. Also, a final survey conducted to ensure the scene has been effectively and completely processed.